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Epidemiology of Tuberculosis.—In some districts in Denmark, tuberculous infection of cattle is very high. In the south and west of the peninsula of Jütland, 75 to 100 per cent of cattle are positive reactors. In other locations, such as the islands, tuberculosis of cattle has been practically completely eradicated. These facts form the basis of a study of the epidemiology of tuberculosis in Haderslev (south Jütland) and the island of Bornholm. In these two areas mortality and incidence of tuberculosis were approximately equal. Whereas in Bornholm only 7 per cent of children below the age of seven are tuberculin-positive, in Haderslev 45 per cent are positive, and below the age of fourteen the figures are 15 and 75 per cent respectively. Tuberculosis of the cortical nodes, surgical tuberculosis and meningitis due to bovine infection were overwhelmingly more common in Haderslev. Pulmonary tuberculosis in need of treatment was more common where infection was due to the human bacillus. Infection with bovine bacillus was usually silent, and the gastrointestinal tract as a portal of entry was judged to be less dangerous than transmission of infection from open pulmonary tuberculosis. A possible exception to this rule was seen in infants. Follow-up studies tend to show that tuberculin-positive individuals only rarely contract severe pulmonary tuberculosis, except if exposed to a massive source of infection. The reverse seems to be true in tuberculin-negative individuals. In Denmark the vaccination of tuberculin-negative young adults with BCG has been found of distinct advantage and is practiced extensively.—*Untersuchungen über die Epidemiologie der Tuberkulose in Dänemark, T. Madsen, Schweiz. med. Wchnschr., June 27, 1942, 72: 685.*—(*H. M.*)

Tuberculosis in London.—In order to assess the effect of war conditions upon the incidence of tuberculosis in London, the authors undertook a review of the notification records. As compared with 1938, there was in 1941 an increase of 43 per cent in the rate of occurrence of new cases of pulmonary tuberculosis and of 15 per cent in new cases of nonpulmonary tuberculosis. The pulmonary tuberculosis death rate increased over the same period by 72 per cent and the nonpulmonary rate by 67 per cent. These increases are much greater than for England and Wales as a whole. Children were affected much more than adults, particularly in the nonpulmonary type. At ages over twenty-five, males have been more affected than females. No appreciable difference in the sexes could be established in the below twenty-five age group. The increase in nonpulmonary tuberculosis has occurred almost equally in all the principal sites, except in abdominal tuberculosis, in which the increase was significantly lower. Considering the finding that new cases of pulmonary tuberculosis increased more in adults than new cases of nonpulmonary disease, whereas the increase in children was marked in the nonpulmonary sites, lead the authors to conclude that contact and droplet infection has been an important feature in London. The factors influencing the incidence of tuberculosis include changes in

the age and sex distribution of the population as a result of evacuation and of recruitment to the Forces, the strain and overcrowding resulting from bombing, fatigue and lack of rest, restriction of diet, and, on the other hand, increased employment and financial resources for those formerly on the verge of poverty. In mental hospitals the increased incidence is greater than in the population as a whole.—*Tuberculosis in London in Wartime, W. A. Daley & B. Benjamin, Brit. M. J., October 10, 1942, 2: 417.*—(*D. H. C.*)

Tuberculosis in Glasgow.—The authors analyzed the first 1,600 confirmed cases of pulmonary tuberculosis notified during the year 1941, with special reference to the effect of occupation and hours of work. The incidence of pulmonary tuberculosis in 1941, for males showed an increase of 9.6 per cent over 1940 and 19.8 per cent over the average of 1938–1939. For females the respective increases were 6.8 per cent and 30.3 per cent. The increase was especially marked in the under fifteen age group for both sexes and in the over forty-five age group confined to males. The number of cases reported in the age groups fifteen to forty-five in males and fifteen to thirty-five in females has only slightly increased in the past year (1941), but exceeds 1938–1939 (prewar years) by 27.3 per cent for males and 28.9 per cent for females. The male death rate for 1941 was 13 per cent above the average in 1938–1939 and 25 per cent higher for females. There was no significant change in the incidence and mortality of non-pulmonary tuberculosis. All 1,600 cases were carefully classified into six general groups depending on type of occupation. The sixth group included mainly workers in war industries and this group accounted for 61.1 per cent of reported cases. When analyzed from the standpoint of hours of work per week it was noted that those workers in heavy industries who bore the brunt of the increased hours showed the greatest incidence, whereas little increase occurred among the commercial and professional classes, whose hours of work remain alone within reasonable limits. An increase was noted in the domestic class—probably due to war strain and the fatigue caused by standing in food queues in all weathers. It was noted that 24 per cent of the reported cases had been contacts with open tuberculosis within the past five years, as against 18 per cent in 1940 and 14 per cent in 1939. In children the rate of increase was 32 per cent since 1938–1939. In this same group there was noted an increase of 90 per cent in the cases showing definite contact with previously open tuberculosis within the past five years.—*Factors Influencing the Increased Incidence of Pulmonary Tuberculosis in Glasgow, S. Laidlaw & D. Macfarlane, Brit. M. J., July 18, 1942, 2: 63.*—(*D. H. C.*)

Tuberculosis in Peking.—As of October, 1940 there was an estimated 75,000 cases of active tuberculosis in Peking, an incidence of one in twenty (5 per cent). To cope with this high rate of morbidity there are only 300 beds available, over two-thirds of these under the management of private physicians. The cost of living in Peking is five times what it was in 1937, yet the amount of individual income has at the most only doubled. Students and professional people are often found to be suffering from this disease and quite unable to get proper treatment. All sorts of treatment for pulmonary tuberculosis can be seen, from local herbs to modern treatment provided by Peking Union Medical College. During the past year a Chinese physician, trained in tuberculosis, studied fluoroscopically 200 employees of a Chinese department store. Eighteen cases of active tuberculosis were thus found and sent to a small sanatorium built by the store. Within a year and a half 16 of the 18 cases, some receiving pneumothorax, returned to work. The success of this small experiment led to a combination of resources of Yenching University, Peking Union Medical College and the department store in an endeavor to find new cases and send them to the sanatorium for treatment.—*The Tuberculosis Situation in Peking—October, 1940, T. L. Kuo, Journal-Lancet, April, 1941, 1: 106.*—(*D. H. C.*)

Tuberculosis in Merchant Navy.—The author points out the difficulty in obtaining figures for incidence of disease in a roving population such as comprises the Merchant Navy. However, fairly reliable figures are present for mortality. An investigation in 1927 had revealed that the death rate for all seamen afloat was nearly double the calculated rate. A further investigation covering the period 1929–1930 revealed a death rate from respiratory tuberculosis among British seamen of all ages of 2.37 per 1,000, and the proportion of deaths from respiratory tuberculosis to total deaths was 9.5 per cent. In 1934 a report of the deaths occurring within twelve months of leaving sea-going employment found that 20 per cent were due to tuberculosis. The author studied the period of three years, 1930–1932, and found that in the age group twenty to sixty-five, of the 6,645 deaths reported, 1,231 were due to tuberculosis. Furthermore, tuberculosis was found to be the most frequent single cause of death for the total age group of twenty to sixty-five. In 1936, a study by J. G. Wilson of the tuberculosis mortality rates in various districts of the city of Cardiff for the period 1923 to 1934, revealed the death rate in the dock areas to be 3.4 per 1,000—twice as high as in the other areas. In reviewing the condition of men admitted for treatment and the result of such treatment it was found that of 300 British seamen admitted to the sanatorium 54 per cent were found to be in class B-3 (far advanced). Of this group, 30 per cent died and 43 per cent made no material improvement. Only 24 of the 300 cases admitted were in class A (minimal). The chief factor for these conditions, according to the author, is the overcrowding in living and sleeping quarters which is almost universal. A further factor in the present situation is the terrific mental and physical strain imposed by war conditions. At present no physical examination is required by law for men entering the Merchant Navy. This would be an excellent group for survey by means of mass radiography. Such a study is now being carried on by means of voluntary effort by the author in an attempt to bring about earlier diagnosis and hence earlier treatment.—*Tuberculosis in the Merchant Navy, J. E. Wood, Brit. M. J., June 13, 1942, 1: 716.*—(*D. H. C.*)

Pulmonary Disease in Armed Forces.—The author states that not enough attention is paid the subject of pulmonary disease other than tuberculosis in the forces. Such diseases as tuberculosis, peptic ulcer and effort syndrome must eventually render the soldiers so affected unfit for further military service, whereas the acute nontuberculous pulmonary affections should be capable of complete cure in a large proportion of cases, and even the chronic varieties, if properly managed, should not be incompatible with a high degree of efficiency. Furthermore, with the exception of the dyspepsias, pulmonary diseases form the largest group admitted to the medical wards. A study is made of 329 patients with pulmonary disease admitted to a military hospital over a twelve months' period (October, 1940 to October, 1941). There were 44 cases of upper respiratory infections (common cold, laryngitis, tracheitis, etc.); these responded quickly to conservative therapy. The 38 cases of acute bronchitis rarely required longer than thirty days of hospitalization. All these cases were returned to active duty, only when no physical signs were present in the lungs. Chronic bronchitis (23 cases in this series) in the armed forces rarely requires hospitalization; in fact army life is often good treatment for such patients. Of the 8 cases of bronchiectasis only 4 gave any indication for discharge from the services, the other 4 were mild cases and were returned to limited duty. There were 41 cases of typical lobar pneumonia. Most of them were treated with sulphapyridine and all of them recovered completely, only one being discharged from the army (because of a chronic duodenal ulcer). There were 12 cases of "pneumonitis" or "benign circumscribed pneumonia." They made an uneventful recovery with conservative therapy and all returned to active duty. Of the 8 cases of bronchopneumonia, 7 occurred in chronic

bronchitics with one death and 2 patients unfit for further service. The author found that uncomplicated cases of pneumonia and "pneumonitis" rarely cause absence from duty longer than fifty days. The healthy young soldier does not require prolonged convalescence from an acute self-limited illness. There were 64 cases of pulmonary tuberculosis. Here the main problem lay in diagnosis because no treatment is rendered in the military hospital. One man showed a primary tuberculous infection of childhood type with Ghon's focus and enlarged mediastinal nodes, which returned to normal after a period of rest. No doubt, primary infection is not uncommon in soldiers from sparsely populated areas and, as in childhood, will usually pass unnoticed by the patient himself. Pleurisy with effusion was found in 25 cases. Here the problem of management and ultimate disposition was difficult. Only 4 cases were returned to active duty after clearing of the effusion and a period of observation for pulmonary tuberculosis. The author states that more such cases will in the future be returned to active duty and watched carefully. Finally, there were 30 cases of pulmonary fibrosis, 3 cases of silicosis, 10 cases of bronchial asthma, 4 cases of carcinoma of the lung, one case of mediastinal lymphosarcoma, 3 cases of spontaneous pneumothorax (all of which returned to active duty after reexpansion), one case of bronchial haemangioma and one case of congenital cystic disease of the lung.—*Management of Pulmonary Disease in the Forces, J. A. Hutchison, Brit. M. J., April 18, 1942, 1: 487.*—(*D. H. C.*)

Tuberculosis in Recruits.—In the last World War tuberculosis in the services cost the British Empire a very large sum of money in pensions and treatment allowances, but the amount of infection spread by tuberculous men passed as fit and by others with latent disease who developed active tuberculosis owing to the strain of military duties cannot be measured. It was decided to investigate the incidence of tuberculosis in recruits referred by medical boards to tuberculosis officers. The period from May, 1939 up to December 31, 1940 was covered. Of a total of 3,049 cases, 1,180 had been previously examined by tuberculosis officers. Of these "old cases" 656 had at some time previously been found to be suffering from tuberculosis; in 166 pulmonary cases the lesion was still active (105 of these had positive sputum); 238 (36.3 per cent) had improved sufficiently to be classified as quiescent or arrested; and 229 (34.9 per cent) were regarded as recovered. The remaining 515 cases were old patients who had previously been found nontuberculous. After thorough workup of the 1,869 new cases, including chest X-ray films, it was found that 498 (27 per cent) were referred because of intimate contact history; 33 (6.6 per cent) of these had active pulmonary tuberculosis; 96 (5 per cent) were referred because of casual contact history, none of which had tuberculosis; 403 (21 per cent) were referred because of a significant past personal history (pleurisy, spontaneous pneumothorax and haemoptysis), 22 (5.4 per cent) were found to be tuberculous; 656 (35 per cent) were referred because of significant present history (cough, haemoptysis, pain in chest, frequent colds, unwonted lassitude, progressive loss of weight, night sweats, etc.) or nonsignificant present history (bronchitis, asthma, etc.), 45 (6.8 per cent) were found to be suffering from pulmonary tuberculosis; 216 (12 per cent) were referred because of physical signs (abnormal signs in the chest and/or poor general condition, rapid pulse, etc.), 12 (5.5 per cent) were found tuberculous. To sum up, 112 cases of tuberculosis were found among 1,869 recruits referred who were not previously known to the Tuberculosis Service, a percentage of 6 (108 had pulmonary tuberculosis and 4 had nonpulmonary tuberculosis). An additional 30 cases (1.6 per cent) required further observation. Finally, the authors state, the finding of a substantial number of tuberculous recruits in Wales strongly supports the view held by most tuberculosis workers that all recruits should be subjected to a radiological exam-

ination.—*Tuberculosis in Recruits, S. H. Graham & M. Davies, Brit. M. J., June 21, 1941, 1: 920.*—(*D. H. C.*)

Case-Finding.—This is the report on governmental work done in the Fifth Sanitary District and in the Fifth Puericulture District of Rio de Janeiro, Brazil concerning the standardization of methods for recording the results of tuberculin tests and radio-photographies of children. The procedure accepted begins with radio-photographic examination and only afterwards, but in accordance with its findings, further investigation by tuberculin test will be pursued. The scheme is as follows: (*1*) if normal roentgenological findings are obtained an intracutaneous injection of .01 mg. tuberculin is given; in unchanged negative cases 1 mg. tuberculin is injected; (*2*) if radio-photographic lesions are suspected tuberculin reaction is tested and in persistently negative cases Mantoux tests are continued until the final test. When the presence of an active tuberculosis is ascertained no tuberculin test is carried out. If any of the tuberculin tests is positive this is considered final. If the Mantoux test with 1.0 mg. is negative the child shall be regarded as anergic. All children will be reëxamined every year by radio-photography and those with negative roentgenological findings will be submitted to tuberculin tests. The author's report contains numerous diagrams and charts concerning the application of this method on 1,050 children and it offers comments on equipment and staff organization required for such a case-finding campaign.—*Plano de cadastro roentgenphotographico e tuberculinico de Criaceas, A. Aguiar & S. de Rezende, Rev. méd. munic., Rio de Janeiro, Brazil, July, 1942, 4: 19.*—(*F. G. K.*)

Photoroentgenography.—With the more recent contributions to roentgenography it was felt that satisfactory diagnostic results might be obtained more economically with miniature radiography of the chest. De Abreu first used this method in 1936. Others have employed it since. Potter, working with the General Electric Corporation, concluding that the film should be small enough to give real economy and yet large enough to be read without enlargement, found the 4 x 5 inch film to be the best size. The fluorescent screen used in photoroentgenography is nearly seven times as fast as the usual Patterson screen and fluoresces with the most intense blue-violet light obtainable. It is mounted in front of a light tight box, one yard long, which tapers down to receive lenses and cameras behind. A lead glass plate, 2 mm. thick, is mounted at the back of the screen to protect the film from X-ray fog. A special lens with a rating of F 1.5 is used. A six element, 150 mm. lens about six inches in diameter, is mounted near the apex of the box. Regular X-ray film was found to be the best type. While positioning and exposure require the usual length of time, developing time is cut materially as is also storage space. The actual saving amounts to about 20 per cent. The 35 mm. film has been used for years in Europe and South America probably because of its advantages which include economy, ease in handling and rapidity of developing. Tice believes that "the technical difficulties of the 35 mm. film are not insurmountable," although the United States Public Health Service in Tennessee reported poor results with this size film. Films obtained in a demonstration by a Westinghouse representative in Los Angeles by the author are reported as having acceptable density and contrast, but not very good detail. De Abreu, working in South America, is said to have used this size film in order to obtain an adequately fast lens. While Potter regards the 35 mm. as entirely too small for satisfactory work and Plunkett reported only 615 of 1,000 such films as technically satisfactory, Michigan reports quite good films, using 35 mm. film in their portable photoroentgen unit. By means of photofluorography the X-ray output at the East Los Angeles Health Centre has been increased 50 per cent, material costs have been reduced and at the year's end the new unit was paid for out of savings on films. Storage space was reduced approx-

imately 65 per cent. However, large numbers only effect substantial savings. A crew of two technicians and one clerk can handle the work of 75 to 100 chest patients daily. If chest survey work only were done, the efficiency would be increased. Potter, Douglas and Birkelo found the 4 x 5 film quite accurate, the percentage error being only 2.6 per cent. Bridges reports an error of 1.5 per cent. At the Los Angeles County Health Department the 4 x 5 film is used on all new patients in the clinic, for all survey work of civil service applicants and for comparison where the previous film has been reported as negative. If any suspicious shadows are seen a duplicate on regular 14 x 17 inch X-ray film is obtained. So far no great difficulties have been encountered. The 4 x 5 films have also been used in a survey of 2,107 persons from the Bureau of Indigent Relief. No person with a chest measurement over 26 cm. was X-rayed with the fluororoentgen unit; thus in 5 per cent the regular size film was employed. Retakes in those under 26 cm. were no higher than with the conventional size film. Small film is not recommended for private or regular hospital or sanatorium work nor for comparisons in active or apparently arrested cases. It is ideal for examining draftees. In surveys it acts as a definite screen and represents considerable saving. Los Angeles Health Department has used it for patients from an area with high tuberculosis mortality and prenatal cases and is contemplating using it for food-handlers. Miniature films are destined to play an increasingly important part in the discovery of new cases of tuberculosis and to become popular in chest survey work.—*Photoroentgenography in a Tuberculosis Program, W. L. Pindell, Radiology, February, 1942, 38: 244.*—(*G. F. M.*)

Tuberculosis in Institution for Feebleminded.—One-thousand six-hundred and fifty six inmates of an institution for the feebleminded were tuberculin tested and X-rayed in 1930; 1,023 of the same individuals were retested ten years later. It was found that though the overall incidence of positive reactors was somewhat higher in 1940 than in 1930, when compared by age grouping at the time of the test, there was a slight reduction in incidence in 1940 up to the age of thirty. Positive reactors under the age of fifteen reverted to a negative state more often than older individuals. Inmates of the building for patients of the lowest mental states developed tuberculosis most frequently and most often converted an original negative into a positive tuberculin reaction. The incidence of tuberculosis in 1940 was higher among those inmates who were negative to tuberculin in 1930 than among those who reacted positively at that time. The merit of this study depends largely upon the fact that the same individuals were observed at both intervals and not, as is most often reported, where the incidence of infection at different times is compared between different individuals.—*Development of Tuberculosis and Changes in Sensitivity to Tuberculin in an Institution for the Feebleminded—A Ten Years' Study, D. Zacks & P. E. Sartwell, Am. J. Pub. Health, July, 1942, 32: 732.*—(*M. B. L.*)

Tuberculosis in Contacts.—This is the third and final paper on the characteristics and distribution of the Pirquet reaction and of diagnosed tuberculous disease in Massachusetts school children. The two preceding papers dealt with these matters as they occurred in the general school population. The present article deals with these data obtained from 2,800 school children in whose immediate family there had been a case of tuberculosis. The proportion of reactors among the contacts was twice that of non-contact children. The reaction rate of the contact children showed little increase after the age of eight. Although in the general school population the morbidity rate in girls was definitely greater than among boys, there was little difference between the sexes in children exposed to household infection. Contact with a tuberculous parent was a greater risk to the children than contact with tuberculosis in some other member of the family. The inci-

dence of diagnosed tuberculosis was seven times greater in contact than in non-contact children.—*Tuberculosis among Massachusetts School Children (A Report on the Massachusetts Ten-Year Program) Part III. A Study of Contact Cases, E. P. Hutchinson & A. S. Pope, Am. J. Hyg., July, 1942, 36: 48.*—(*M. B. L.*)

Tuberculosis in Family.—A twenty-eight year old man presented himself for diagnosis. He had a two months' history of cough, expectoration, fever, etc. Tubercle bacilli were recovered from his sputum. X-ray film revealed extensive unilateral disease with a partial spontaneous pneumothorax of the diseased lung. Sanatorium treatment was instituted with the continuation of pneumothorax and patient improved markedly. His family group was studied. All 5 members were found to be positive to the tuberculin test. X-ray examinations were then made. The hired man was found to be negative. The patient's mother, aged sixty, was found to have an infiltrative lesion on one side. She was symptom free and physical and laboratory examinations proved to be negative. However, a film taken one year later revealed a recession of the lesion. One child, aged one year six months, showed opacities in the left hemithorax which were smaller on reëxamination six months later. Another child, aged four, showed a rounded lesion about the size of a walnut, in the second interspace. Film taken eleven months later showed a much larger area with a triangular conformation. Film taken nine months later showed almost a complete disappearance of this lesion. A third child, aged three, showed a mottled opacity in one lung. The patient was symptom free until six months later when he came to the hospital with a picture of tuberculous pneumonia. Sputa and gastric lavage were negative. He had cough, night sweats and fever. Over a period of four months he made an uneventful recovery and X-ray film showed diminution of the lesion. Eleven months after the acute onset and seventeen months after the initial examination, X-ray film revealed complete disappearance of the parenchymal lesion with calcium deposits in the nearby hilar regions. Finally, the wife of the patient showed a Ghon tubercle with an enlarged hilum and calcium deposits. Thus, the pathogenesis or life cycle of human tuberculosis is exemplified in these 6 cases.—*Various Tuberculous Lesions in One Family Group, E. J. Simons, Journal-Lancet, April, 1941, 1: 108.*—(*D. H. C.*)

Familial Tuberculosis.—Routine examination of the children of a man with open pulmonary tuberculosis led to an interesting study. The wife was healthy. All 7 children, aged ten to twenty-two, had positive tuberculin tests. Pathological X-ray findings were present in all but one child. There was considerable similarity in the pulmonary lesions of all children. One pair of twins had practically identical lesions. While infection depends on contact with an open case, the form and evolution of the lesion is determined by familial and apparently hereditary factors. —*Eine schwere tuberkulöse Familieninfektion, A. Wernli-Hässig, Schweiz. med. Wchnschr., June 27, 1942, 72: 713.*—(*H. M.*)

Tuberculosis in Nurses.—It has been felt that the young student nurse group is potentially the most vulnerable group among the hospital personnel by reason of sex, age, opportunities for infection and intimacy of contact. A six-year study, from 1934 to 1940, of student nurses at the Jersey City Medical Center is presented. Routine chest X-ray films are taken on admission and every four months thereafter. All student nurses are routinely tuberculin tested on admission and the negative reactors retested annually. Six hundred and ninety-nine nurses were thus examined, 60 per cent had a positive tuberculin test on admission and 83 per cent were positive on graduation. It is interesting to note that there was a progressive drop in the infectivity rate at graduation. Thus the graduating class of 1937 had 95 per cent reactors and the last class, 1940, had 70 per cent, the intervening classes having 89 and 79 per cent

respectively. Thirteen nurses (1.85 per cent) developed active tuberculosis during their period of training—the diagnosis was made on a roentgenogram before the individual presented herself for examination. Twelve, or 92.3 per cent, were minimal cases and only one was a moderately advanced case. Nine are now working again, 2 are convalescing at home and the last 2 diagnosed are still in the hospital. Only 2 of the 13 had had training on the Tuberculosis Service before the lesion was noted. Seven were originally positive to tuberculin, 5 were negative and one was not tested. It is suggested that routine chest X-ray examinations of all new admissions to a general hospital would be an ideal method for the purpose of diagnosis and segregation of tuberculous patients, and thus decrease the health hazard for nurses.—*Tuberculosis Among Student Nurses, B. S. Pollak & S. Cohen, Journal-Lancet, April, 1941, 1: 111.*—(*D. H. C.*)

Tuberculosis in Infancy.—Of 184 children between the ages of one day to twenty-four months who, at the National Pediatric Institute of Lima, Peru, were examined by X-ray, only 60 had no pulmonary lesions. The remaining 124 were subsequently subjected to clinical and laboratory examinations for tuberculosis. Tuberculin test was negative in 57 cases. Twenty-six infants had a typical primary pulmonary lesion, 4 had pleural lesions, 13 infiltrating lesions, 48 lymphatic involvement, 4 a complete classical lymphadeno-parenchymal lesion, 6 ulcerating infiltrations, one bronchopneumonic consolidation and 12 nodular lesions. Thus 96 infants showed signs of active tuberculosis. The site of the primary pulmonary lesion was in 58 per cent the upper lungfields, in 34.5 per cent the lower lungfield and in 7.5 per cent the middle lobe. These figures correspond well to those of Ghon-Winternitz, Hesse, Puhl. Of these 96 cases, 71.8 per cent presented the first stage, 8.3 the second and 20.9 per cent the third stage with infiltration, cavitation and bronchopneumonias. The percentage of tuberculosis among children between the ages of one day to twenty-four months in a supposedly healthy parental group is 28.7 per cent, 29.4 per cent among boys and 27.8 per cent among girls. The percentage of tuberculosis among infected parental groups is only 1 per cent higher than in the healthy group. The localization of the primary lesion is in direct relationship to the age of the child and to the most ventilated parts of the lungs: the younger the child the more frequently the upper lungfields are involved and in the older child the lower lungfields are predominantly the site of the primary infection. As prophylactic measures, examination of the pregnant mother, vaccination and separation of the infant from maternal contact are strongly advocated.—*Diagnostic y profilaxia de le tuberculosis en el lactante, L. M. Balbuena, Chronica Medicina de Lima, Peru, March, 1942, 59: 77.*—(*F. G. K.*)

Late Primary Tuberculous Infection.—Decrease in tuberculous infection in childhood necessarily brought an increase of primary infection in young adults and adults. Autopsies in the Swiss army indicate that 50 per cent of the male population between twenty and fifty-five years have been infected. Among 72 cases of fatal miliary tuberculosis and meningitis 60 were due to progressive primary tuberculosis. The late primary infection is frequently silent, and becomes apparent only when benign or malignant dissemination occurs. Benign forms of early dissemination are exudative pleurisy or *erythema nodosum.* Malignant forms include progressive protracted dissemination with miliary tuberculosis and meningitis. Progressive intracanalicular spread with production of massive pulmonary tuberculosis is observed as frequently as haematogenous dissemination. The source of the dissemination is the primary parenchymal focus which has progressed to cavity formation. Occasionally the source is a bronchopulmonary node with rupture in the bronchus. Prognostically poor signs are failure of the primary focus to show evidence of resorption on X-ray, fever, continued weight loss, high sedimentation time, leucopenia with

lymphopenia, tachycardia. Mortality in late primary infection of young adults is high because of frequency of haematogenous dissemination at that period of life.—*Die tuberkulöse Spät-Erstinfektion und ihre Frühevolution, E. Uehlinger, Schweiz. med. Wchnschr., June 27, 1942, 72:701.*—(*H. M.*)

Late Primary Tuberculous Infection.—This is a report of 48 cases observed during primary infection. All the patients were adults. The majority exhibited symptoms, such as fatigue, cough, sputum. Fever was present in 33 out of 48 cases. X-ray evidence of pulmonary involvement was present in 28 cases. The right lower lobe was most frequently the seat of the infiltration. Sedimentation time was elevated in all but 5 cases. The blood picture showed a shift to the left in 28 cases. Monocytosis and eosinophilia were frequently present. Fourteen patients developed *erythema nodosum*. All patients were positive to tuberculin in high dilution. Four different courses of the late primary infection are recognized. (*1*) The clinically and roentgenologically latent form, in which the only positive finding is a change from negative to positive tuberculin reaction. (*2*) The clinically latent form in which X-ray changes are observed. (*3*) The disease may appear as an acute infectious process in which both clinical and X-ray findings are present. (*4*) A definite clinical course without X-ray findings is observed. No complications were observed in 29 cases. Eleven patients developed pleurisy with effusion. Two patients developed polyserositis. Only 4 patients developed progressive pulmonary tuberculosis, one joint tuberculosis and one patient developed a diffuse tuberculosis of the lymphatic system. The frequency of *erythema nodosum* is striking. It is attributed to a highly allergic state, and goes hand in hand with marked sensitivity to tuberculin. In this series the source of contact was determined in 28 cases.—*Zur späten tuberkulösen Primärinfektion und ihrer Entwicklung, S. Leitner, Schweiz. med. Wchnschr., June 27, 1942, 72: 711.*—(*H. M.*)

Late Primary Infection.—Exposure to tuberculous infection is frequently delayed until adult life. The concept of early universal exposure and infection has been changed within recent years chiefly through the work of Scandinavian countries. Primary tuberculosis in adults is, therefore, a rather common occurrence. The prognosis is neither better nor worse than in children. The clinical picture is not characteristic and cannot be relied upon to make a diagnosis. Occasionally X-ray findings, together with the change of a negative tuberculin test to a positive test, are the only findings. Irregular fever and malaise, *erythema nodosum*, or Poncet's rheumatism and phlyctenular conjunctivitis may be typical features of the disease. In the light of today's knowledge, fresh infiltrations in adults have to be regarded as primary infections and it is up to the physician to prove that they are not primary. Exogenous infection, therefore, increases in importance. Although the respiratory tract is the usual portal of entry, the intestinal tract, including the tonsils, must occasionally be considered.—*Die tuberkulöse Spät-Erstinfektion und ihre Entwicklungstendenz, W. Löffler, Schweiz. med. Wchnschr., June 27, 1942, 72: 686.*—(*H. M.*)

Tuberculosis with Cavitation.—A study is presented of 406 patients with cavitary pulmonary tuberculosis. The early case fatality was particularly striking, 42 per cent of the patients dying within twelve months of diagnosis. At the end of the first five years, three-quarters of the original total were dead and, of the survivors, one-half died within the second five years. In other words, of any 8 patients with positive sputum, 2 would be expected to survive five years and one to survive ten years. The expectation of life for a patient whose initial symptoms include haemoptysis is shown to be more than twice as good as that for other patients. The probability of living five years for a patient whose disease began with haemoptysis was 0.50, compared with that for all other patients of 0.23. The difference is statistically significant and endorses the good prognostic value of

initial haemoptysis claimed by a number of clinicians.—*Pulmonary Tuberculosis with Cavitation: Clinical and Epidemiological Features and Case Fatality, B. C. Thompson, Tubercle, June, 1942, 23: 139.*—(*E. H. R.*)

Tuberculosis and Pregnancy.—Pregnancy involves a special risk for the tuberculous woman. The patient may show an apparent and occasionally a real improvement during pregnancy but this is rarely maintained after delivery. The injurious effects usually begin late in pregnancy but increase during the puerperium and reach the maximum when lactation is established. No type of tuberculosis is immune. Latent infection may be activated, quiescent lesion reactivated and active disease made worse. Prognosis varies from good to bad and must be given with caution, although the outlook in latent and arrested disease is not necessarily bad. The present arrangement for the disposal of pregnant tuberculous women in British East India is not satisfactory and it is a matter for regret that only few sanatoria can provide that continuous supervision which must be maintained throughout pregnancy, labor and puerperium if the maternal risk is to be reduced to a minimum. The principles of treatment are: (*1*) sanatorium regimen and discipline without break of continuity from admission during pregnancy until discharge after the dangerous postnatal period has been passed; (*2*) skilled obstetrical supervision; (*3*) up-to-date treatment; and (*4*) prolonged postnatal care and avoidance of conception for at least two years after the patient has been clinically well with normal temperatures and free of sputum. Therapeutic abortion is indicated only for exceptional cases of early disease and it should never be employed as a routine practice. Lactation must be forbidden in every case and special precaution always taken to guard the child against infection. As to the question of active tuberculosis and marriage the author adheres to Osler's dictum: "if a girl no marriage, if a wife no conception, if a mother no suckling." Of extrapulmonary tuberculous lesions during pregnancy laryngeal and spinal tuberculosis are apt to be made worse by pregnancy. In the latter condition sudden generalization and acute pulmonary and laryngeal tuberculosis have been observed during pregnancy. Both complications are serious and pregnancy therefore should be terminated as early as possible.—*Tuberculosis in Women—Pregnancy and Marriage, R. B. Sarkar, Patna J. Med., January, 1942, 17: 65.*—(*F. G. K.*)

Tuberculous Bronchitis.—Bronchoscopy in 30 cases of childhood tuberculosis between the ages of eight and fourteen years revealed bronchial tuberculosis in 10 cases (33 per cent). Two of these cases were single primary lesions while in the remaining cases fibrocaseous, ulcerative, chronic miliary and atelectatic pulmonary lesions were present. In 4 cases the right bronchus was involved, in 3 the left and in 3 cases both bronchi were involved. Six children died as a result of the progressive pulmonary lesions; one child died from tuberculous meningitis and 2 are still under observation.—*La tuberculosis bronquial en el nino, R. J. Mendoza, J. G. Arrazuria & R. Meneses, Bol. Soc. cubana de pediat., May, 1942, 14: 217.*—(*F. G. K.*)

Diabetes and Tuberculosis.—Because tuberculosis occurs almost three times as often in diabetics as in the general population, 349 cases of diabetes and tuberculosis treated at the Sea View Hospital were reviewed. The peak of onset in diabetics is after the age of forty, thus it coincides with the age distribution of diabetes rather than tuberculosis. Diabetes usually preceded the advent of tuberculosis, suggesting that diabetes predisposes to tuberculosis and there is considerable evidence to support this theory. There is also experimental evidence suggesting that diabetes renders the animal more susceptible to tuberculosis. Available data, including the present series, indicate that it is uncontrolled diabetes, rather than diabetes *per se*, that results in a greater susceptibility to tuberculosis. It is also evident that tuberculosis is a complication of severe rather than mild diabetes, as 32.6 per cent of the patients were mild diabetics,

24.4 per cent were moderately severe diabetics and 43 per cent were severe diabetics. A striking feature is the very small number of patients with minimal involvement and the large number with far advanced disease when first seen; thus only 11.4 per cent had minimal disease, 30.6 per cent moderately advanced disease and 58 per cent far advanced disease. The rapid progress of tuberculosis in untreated or poorly managed cases, the similarity of early symptoms of the two diseases and the frequent absence of physical findings in many cases of tuberculosis are suggested as reasons for the delayed recognition of tuberculosis. The prognosis, as in the nondiabetic, depends largely on the stage of tuberculosis at which therapy is instituted. The most important factor in the successful cure of tuberculosis in diabetes is well controlled diabetes. The diet should be regulated so that the body weight is slightly above the calculated normal. Adequate vitamin intake is essential. At Sea View a moderately high carbohydrate diet is employed and insulin is used whenever adequate nutrition and sugar free urine cannot be obtained by diet alone. The majority, 278 out of 349 cases, required insulin. Protamine zinc insulin is of special value in the treatment of diabetes complicated by tuberculosis as there are fewer hypoglycemic reactions and a more adequate control of the disease with its use. An analysis of patients receiving insulin six months or more revealed that of those receiving regular insulin 21.9 per cent became arrested or apparently arrested and 43.7 per cent died, whereas 32.5 per cent of those receiving protamine zinc insulin became arrested or apparently arrested and only 8.4 per cent died. The extent of the disease and the type of treatment were essentially the same in the two groups. A more continuous control of the diabetic process resulting in a better state of nutrition is probably the explanation for the favorable effect of protamine zinc insulin and this view is supported by the work of Wilder who showed that there were no periodic intervals of nitrogen loss with protamine zinc insulin, even when a moderate glycosuria was permitted. No favorable influence on diabetes of the tuberculous infection could be demonstrated, but the analysis did show that the course of the tuberculous infection has no constant effect on the severity of the diabetes. However the effects of previously uncontrolled diabetes did influence the decision as to the particular type of treatment given. The authors believe that, with well controlled diabetes, the prognosis of the tuberculosis approaches that in the nondiabetic and this view is now generally accepted. One hundred thirty-nine patients received pneumothorax, 7 of whom received bilateral pneumothorax. The average age was forty, but 37 were over fifty years of age. The number becoming sputum-negative was significantly lower among the diabetics, while the number having the complications of pneumothorax, especially empyema, was higher. Five patients received thoracoplasty. Three of these died. Pneumothorax had no effect upon the control of diabetes.—*Diabetes Mellitus and Tuberculosis, M. F. Mark, H. O. Mosenthal & F. Liu, Am. J. M. Sc., April, 1942, 203: 490.*—(*G. F. M.*)

Sulfanilamide and Differential Diagnosis.—In sanatorium practice it is difficult at times to determine when low grade fever or considerable temperature elevation is due to the underlying tuberculous process or to complicating colds, sore throats, urinary infections, etc. This is especially difficult in pediatric tuberculous institutions. It is important to arrive at a differential diagnosis of fever of nervous origin, fever due to tuberculosis and fever due to intercurrent banal infections. To differentiate nervous fever, pyramidon in three divided doses of 0.1 to 0.2 g. is given before the evening temperature is taken. If no effect on the temperature is observed, the fever is probably not of infectious origin. To differentiate fever of infectious other than tuberculous origin, children receive three to four doses of sulfanilamide daily. The dose is 0.1 g. per kilo daily. A child weighing about 60 lbs. receives one tablet four times daily. In the dosage described the sulfadrugs are without harmful effects. These drugs have no influence on the temperature in normal

people, and they will not lower the temperature if due to tuberculosis, pleural effusion, etc. While in general it is advisable to arrive at a diagnosis in general practice before starting treatment, the use of sulfadrugs for differential diagnosis of pulmonary consolidations will be found useful at times.—*Die Temperatursenkung durch Sulfanilamide als dieffrentialdiagnostisches Merkmal, besonders gegenüber Tuberkulose, J. Burckhardt, Schweiz. med. Wchnschr., June 27, 1942, 72: 717.*—(*H. M.*)

Thoracic Surgery.—Advances in this branch of surgery followed upon the improvement of anaesthesia. Positive pressure anaesthesia has eliminated the danger of operations on the open thorax, such as paradoxical respiration, mediastinal flutter and pendulum respiration. The heart has been successfully operated on for wounds, adhesive pericarditis and angina pectoris. The latter has been approached through resection of sympathetic ganglia and through anastomosing operations designed to establish collateral circulation. Embolectomies of the pulmonary artery and operations on deformed valves have occasionally been done with success, although the mortality of these operations is necessarily high. Mediastinal surgery includes removal of benign tumors, operations on the thoracic oesophagus and drainage of collections of pus. Operations for drainage of empyema were done many years ago, but operations on the lung proper were not done successfully until the 1880's, when the pulmonary apex was resected for tuberculosis. The paravertebral thoracoplasty was devised later, but has been largely replaced to-day by selective upper-stage thoracoplasty. Newer operations are extrapleural pneumothorax, Monaldi drainage and paraffin plombage. These operations have the advantage of a low mortality and can be done on patients too ill for thoracoplasty. Lobectomy and pneumonectomy were originally done for bronchiectasis, but later were applied to tumors. To-day these operations are also successfully practiced in suitable cases of tuberculosis. These advances are most significant in the treatment of tuberculosis because of the frequency of this disease as compared to all other diseases of the chest. —*Der heutige Stand der Thoraxchirurgie, A. Brunner, Schweiz. med. Wchnschr., July 18, 1942, 72: 781.*—(*H. M.*)

Pneumothorax.—The late results of pneumothorax therapy in 180 cases, mostly male, hospitalized only at the beginning of treatment, were analyzed. All cases treated with unilateral pneumothorax maintained long enough to have an effect were included, provided it was possible to follow them after reexpansion. Results were favorable in 95 cases and unfavorable in 85. Favorable results were classified as either essentially cured or improved. The former, 41 cases, showed negative sputum, healing of lesions by X-ray and restoration to socio-economic usefulness. The latter, 54 cases, were cases showing general improvement, arrest of the pulmonary lesion, but some signs of persistent activity such as intermittently positive sputum. Thus cases with positive sputum due to lesions of the large bronchi would be included. Unfavorable cases were divided into "not influenced" (25) and "made worse" (62). The former included cases with some clinical improvement but no change by X-ray. The early infiltrations (77) showed the best results: 26 essentially cured, 21 improved, 30 unfavorable. Micro-nodular forms showed only 5 of 47 cases cured, with 28 poor results. Fibrocaseous forms (52) showed 10 cured, 15 improved, 27 unfavorable. Macro-nodular forms (4 cases) were all cured. In general, the more localized the process, the better the results. In 42 cases without cavities, there were 76 per cent favorable results contrasted with 46 per cent in cases with cavities. Nevertheless, 63 per cent of the cured cases and 70 per cent of the improved originally showed cavities. This is significant in view of the infrequency of spontaneous closure of cavities. Better results were obtained where cavities were not rigid, but improvement and, in some cases, cure occurred in 31 per cent of cases with rigid cavities. Exudative cases gave a higher percentage (24 per cent) of cures than pro-

ductive (10 per cent). Total satisfactory results for both were about the same (50 per cent). Cavities of all types responded to pneumothorax but perihilar cavities gave the best results and lower lobe cavities the poorest. In 54 per cent of the cases, the lesion was unilateral; among these there were 35 per cent essentially cured and 72 per cent favorable results in all. The presence of a contralateral lesion diminished the effectiveness of pneumothorax, especially when the lesion was micro-nodular (86 per cent failures). The type of the contralateral lesion was more important than the extent. Results in patients of more than forty years were poor (only 16 per cent favorable), because of the age of the process or the frequent presence of adhesions. Best results were obtained when the collapse was begun within six months of the onset. There were 62 per cent favorable results as compared with 40 per cent in cases started after a year of illness. It was found best to start in a period when there was little tendency to progression of the lesion. Results were best in cases where the collapse was prolonged. Of 11 cases treated for more than three years, 8 were essentially cured and 2 improved. Of 22 cases treated for between two and three years, 9 were cured and 10 improved. Cases must be individualized insofar as duration of treatment is concerned. Some degree of effusion occurred in 55 per cent of cases. Of all cases, 7 per cent showed purulent effusions and 33 per cent moderate or marked serofibrinous effusions. Contrary to the findings of some authors, the latter type indicated a poorer rather than a better prognosis. In the presence of such effusions there were only half as many favorable results as in cases with little or no effusion. Nevertheless, 30 per cent of the cases essentially cured had at least moderate serofibrinous effusions. In 56 cases pneumothorax was discontinued on the basis of probable cure. Twenty-nine remained arrested; 23 were called improved. Some of the latter were arrested but still too early in the follow-up period to be called essentially cured. Four cases relapsed. Unfavorable results tended to appear when an ineffective pneumothorax was continued more than six months. Appearance or reactivation of a contralateral lesion caused cessation of the pneumothorax in 27 cases. It is believed that this complication is not referable to the collapse but to the progressive tendency of the disease. All such cases showed persistently positive sputum. Of 105 cases with immediately favorable results, relapse occurred in 14; in 5 of these it was at the site of the old lesion. Four had been considered cured and, in the fifth, pneumothorax had been stopped because of adhesions following a pleural effusion.—*Resultados alejados del neumotórax artificial, O. P. Aguilar & G. Sirlin, Arch. argent. de tisiol., January–March, 1942, 18: 54.*—(*H. B. S.*)

Reinduced Pneumothorax.—At the age of fourteen years the patient was treated with artificial pneumothorax on the left side for pulmonary tuberculosis. After two years collapse therapy was discontinued and the patient took up his occupation. He felt well until the age of twenty-three when recent signs and symptoms suggested a bilateral fibrocaseous tuberculosis with cavities in the left upper lobe and with numerous small nodes in both lungfields. Gold medication was started and an artificial pneumothorax on the left side instituted. After several cautious preliminary insufflations a satisfactory selective collapse of the upper lobe was obtained, the lower lobe being largely adherent. After a very favorable course during one year the patient was pronounced healed and he returned to work. This case represents the fairly rare successful reinduction of an artificial pneumothorax seven years after collapse therapy on the same side.—*Un caso de reiniciation de neumotorax, H. Norric, I. A. Bandia & R. G. Coive, Rev. med. y cien. afines, March, 1942, 4: 72.*—(*F. G. K.*)

Symptomatology of Pleural Aspirations in Hydropneumothorax.—A series of cases of hydropneumothorax are described which showed symptoms of distress after aspiration. The onset of these symptoms was attended

by a fall in blood pressure associated with high negative intrapleural pressures, mediastinal displacement and lung reëxpansion. In all cases, relief of distress symptoms followed injection of adrenalin, also pituitrin. The relief was accompanied by a rise in blood pressure and occurred at a time when mediastinal displacement, lung reëxpansion and high negative intrapleural pressures had not been adjusted. The distress symptoms described are therefore believed to be due to circulatory disturbances, causing a fall in blood pressure after aspiration.—*An Investigation into the Symptomatology of Pleural Aspirations in Hydropneumothorax, H. P. Fernandes, Tubercle, February, 1942, 23: 50.*—(*E. H. R.*)

Pleural Drainage Tubes.—Certain aspects of acute empyema are discussed which are of practical value in the management of the condition. Particular emphasis is placed on the difficulties and pitfalls of pleural drainage. Whereas the presence of pus in a simple abscess is an indication to operate, in cases of empyema the danger of open pyopneumothorax may outweigh the harmful effects of pus in the pleural cavity and the time for drainage is dictated by other circumstances. Because of the difference in rigidity in the walls of an empyema, dependent drainage is a *sine qua non* and the tube requires constant attention to meet the ever-changing anatomy of the pleural cavity. The immediate effects of drainage are to relieve tension, to diminish toxaemia and to allow the lung to begin reëxpanding. The tube must be an efficient drain and not merely a foreign body in the chest. The major portion of the paper is devoted to the following discussions which should be read in the original: (*1*) the effects of drainage of empyema with a tube; (*2*) the care of tubes used for pleural drainage; (*3*) abnormal conditions of the chest wall associated with tubes; (*4*) painful tubes; (*5*) abnormal intrathoracic conditions produced by tubes; (*6*) the signs and symptoms of insufficient drainage; (*7*) causes of inefficient drainage and their correction; (*8*) auxillary treatments (irrigation of the cavity, continuous suction); (*9*) final removal of the tube.—*The Effects and Management of Tubes Used to Drain the Pleural Cavity, N. R. Barrett, Brit. J. Tuberc., April, 1942, 36: 62.*—(*E. H. R.*)

Pneumonolysis.—Results following thoracoscopy, combined either with partial or complete pneumonolysis are discussed on the basis of 100 cases of pulmonary tuberculosis. Of these cases, 76 were far advanced and 24 were moderately advanced. Conversion of sputum and closure of the cavities occurred in two-thirds of the cases in which complete pneumonolysis was done and in one-third of the cases in which a partial pneumonolysis was performed. The average duration for the conversion of sputum and closure of cavities ranged from sixty-four to seventy-five days. The most important postoperative complications are listed which consisted essentially of hydrothorax, tuberculous empyema, spread to the contralateral lung, haemothorax and spontaneous pneumothorax. Three patients died; the chief cause was a spread to both lungs.—*Thoracoscopy and Pneumonolysis, L. Carp & B. A. Kornblith, Surg., Gynec. & Obst., May, 1942, 74: 939.*—(*H. R.*)

Thoracoplasty through Short Lateral and Posterior Incisions.—Two variations of the posterior hockey-stick incision for a paravertebral thoracoplasty were employed. The chief value of this operation lies in the fact that the muscle fibres are not divided, thus preserving the fascial and muscular planes of the back. Other points of value are the lessening of shock and haemorrhage and the obtaining of better cosmetic results. In a number of cases, however, a neuritis with weakness of the fore-arm and hand has developed, but this has been temporary with resultant full recovery.—*Thoracoplasty through Short Lateral and Posterior Incisions, R. H. Wylie & F. B. Berry, Surgery, July, 1942, 12: 410.*—(*H. R.*)

Thoracoplasty.—After a short history of the development of thoracoplasty, the results of

this operation at the Hopital Laval are discussed. In the last ten years, 157 operations were done on 66 patients. Usually only patients in good general condition, with fibrotic process and without contralateral involvement, were accepted for operation. Eleven cases are too recent to allow any conclusions. Of the remaining 55, 11 (20 per cent) died. Four of these died of the consequences of the operation, 7 died nine days to six years after the operation. Twenty-nine and one-tenth per cent of the cases are cured, 40 per cent are improved, 7.3 per cent are stationary, 3.6 per cent are worse. These results are similar to those of most other authors.—*Résultats de la thoracoplastie à l'hopital Laval, J.-P. Roger & J.-M. Lemieux, Laval méd., November, 1942, 7: 464.*—(*G. C. L.*)

Thoracoplasty Revision.—A revision operation is a procedure in which an effort is made to correct the failure of the original thoracoplasty and to cure the patient's disease. Twenty-two patients were operated upon by a technique planned to collapse only that part of the lung which contained a residual cavity after the previous thoracoplasty. In 12 of these patients the sputum became negative following revision. Four patients died postoperatively and 2 died after one year due to spread of the tuberculosis. The important feature of the operation is a posterior and medial dissection of the lung toward the mediastinum. This dissection is carried out in the costovertebral gutter and necessitates the removal of the posterior segments of the ribs and corresponding transverse processes. The operation is carried out through the scar of the previous thoracoplasty and, because of the extensive scar, tissue bleeding and consequent surgical shock are frequently encountered. Following revision of the thoracoplasty there was no appreciable change in the patients' vital capacity. Many revision operations can be avoided if at the time of the original thoracoplasty the posterior stumps of the ribs are cut short and the pleura dissected toward the mediastinum away from the spine. It is only in this way that there can be a thorough collapse of the paravertebral portion of the lung which so often contains cavities.—*Results of Thoracoplasty Revision Operations, M. Weinstein, Quart. Bull. Sea View Hosp., July, 1942, 7: 261.*—(*A. A. E.*)

Exogenous or Endogenous Origin of Adult Tuberculosis.—This study is concerned with the likelihood of the development of tuberculosis in early adult life in individuals infected during childhood but entering adolescence in apparent good health. Nine hundred eighty-two persons who had had a positive tuberculin reaction during childhood were observed for seven to eight years during their adolescence and early adult life. It was found that the mean annual morbidity rate was 0.33 per cent in the white group and 1.21 per cent in the colored group. This morbidity rate was two to three times higher in the females of both groups. The tuberculous morbidity of the white persons who had no household contact with tuberculosis after childhood was 0.1 per cent as contrasted with a 2.0 per cent incidence in white individuals who continued household contact with sputum-positive tuberculosis during adolescence and early adult life, that is, the incidence was twenty times higher in the individuals who were exposed to exogenous reinfection than in those not so exposed. In colored persons, continued contact with tuberculosis during this period accounted for a fivefold increase in incidence. If there was no household contact with tuberculosis in adult life the morbidity was not higher in persons presenting radiological evidence of primary tuberculosis than in persons without such radiological evidence. The data were statistically significant. It is concluded that tuberculosis in adolescence and early adult life is more frequently the result of household exogenous exposure after childhood than to endogenous breakdown of lesions acquired during childhood.—*The Relation of Childhood Infection to the Development of Tuberculosis in Early Adult Life, H. L. Israel & H. DeLien, Am. J. Pub. Health, October, 1942, 32: 1146.*—(*M. B. L.*)

Tubercle Bacilli in Raw Milk.—The author points out that the incidence of tuberculosis of the bovine type in the human subject in the British Isles is regrettably high. The percentage frequency of this type in cervical lymph node infection at all ages was 46.2 and 52.3 in England and Scotland respectively, in 1937. The corresponding figures in bone and joint infections were 22 and 29.8, in lung infections 0.9 and 5.5, in lupus 48.6 and 53.8, in meningeal infection 25.7 and 29.8. These lesions result almost entirely from the ingestion of milk from infected cattle. Approximately 40 per cent of cattle react to the tuberculin test and about the same proportion are found infected on slaughter in abattoirs. The present study involved examination of random samples of raw milk exposed for sale in the retailer's premises on the morning of delivery. One hundred cc. of each sample were centrifuged, resuspended in 5 cc. of the supernatant fluid and injected into guinea pigs. Those pigs not dead in eight weeks were killed. All were autopsied. Of the 93 specimens thus examined, 19 (20 per cent) were found positive. These results serve to indicate the continued unsatisfactory condition of raw milk supplies. The author concludes that compulsory pasteurization of milk is thus to be considered an essential measure.—*Condition of Raw Milk in an Urban Area, C. A. Green, Brit. M. J., July 4, 1942, 2: 9.*—(*D. H. C.*)

Bacteriological Diagnosis of Tuberculosis.—The results of bacteriological examinations of 114 sputa including culture and inoculation are presented. Fifty were positive for tuberculosis, that is 43.8 per cent. In 12 cases direct examination of the samples was positive, culture and inoculation having been made only to determine the type of bacillus. In every positive case the biological properties of the bacillus were those of the human type. Colonies developed in twenty to thirty days and inoculation of guinea pigs was not positive before more than two months after injection. If direct examination is negative in a given case culture and inoculation should be made. The former has the advantage of requiring half of the time of inoculation. The latter establishes the identity of the bacillus type. Because sometimes premature death of the inoculated animal occurs from intercurrent infections both tests should be carried out simultaneously. The percentage of 43.8 per cent of positive results in 114 suspicious cases proves the necessity of safe methods for the demonstration of the tubercle bacillus. Since direct examination is often negative bacteriological tests are strongly advocated.—*Do diagnóstico bacteriológica da tuberculose, M. Fontes Magarao, J. Dauster, J. C. Campos de Paz & S. P. Carvalho, Rev. méd. munic., January, 1942, 3: 32.*—(*F. G. K.*)

Gastric Lavage.—Many studies reveal the importance of gastric lavage in the diagnosis of tuberculosis in children. Seventy-five cases admitted to the hospital in a two-year period are studied. They consist of children of both sexes, aged from two to eleven. They include 64 pulmonary or observation cases and 11 nonpulmonary cases. So far as possible all cases of faucial, nasopharyngeal and middle-ear tuberculosis were excluded, to obviate any chance of obtaining a positive result from discharge swallowed from any of these sources. Using a no. 10 catheter, the stomach is washed out in the morning after the child has fasted for fourteen hours. In all 200 to 300 cc. of sterile water are used. The material thus obtained is concentrated, following which direct smears are made, cultures are set up and guinea pig inoculations are done. Of the 64 pulmonary or observation cases 40 had symptoms. The same number revealed physical signs. All but 4 were positive to tuberculin intracutaneously. Radiological examination revealed parenchymal lesions in 35 cases, dense nodes and enlarged root shadows in 19 and pleurisy in 6 (2 with effusions); 4 cases were regarded as within normal limits. Tubercle bacilli were found in the gastric contents of 24 cases (37 per cent), 3 by direct smear (confirmed by culture or guinea pig inoculation), 10 were positive on culture and guinea pig inoculation, 7 on culture only and in 7 a positive result was obtained after guinea pig

inoculation only. A positive result was not found in any of the nonpulmonary cases. The tubercle bacilli found were all of the human type. A parenchymal lesion was present in 22 of the positive cases and pleural effusions in the remaining 2. The authors feel that a positive result would have been obtained in the 13 cases showing parenchymal involvement yet not revealing any bacilli, if more lavages had been done on successive days or if the cases were observed over a long period of time with frequent lavages. Although the prognosis is favorable in children with these lesions they must be regarded as infectious and should be properly segregated.—*Gastric Lavage in the Diagnosis of Tuberculosis in Children, T. W. Davies & C. J. Doherty, Brit. M. J., February 14, 1942, 1: 212.*—(*D. H. C.*)

Cultivation of Tubercle Bacillus in Chick Embryo Solution.—The author prepared a medium of 2 per cent chick embryo made up in Tyrode's solution. The medium was inoculated with equal amounts of avian, bovine and human types of M. tuberculosis and incubated at 37°C. After six days incubation of the avian type almost every piece of tissue was packed with acid-fast organisms, whereas with the bovine and the human types, although most of the tissue cells contained organisms, they were obviously present in smaller number. Subcultivation of the avian type was successful but the growths became progressively less profuse, until by the eighth subculture, the organisms failed to multiply. In the case of the human and bovine types, although a good growth was obtained in primary culture, no apparent growth was obtained on subcultivation.—*Cultivation of Mycobacterium Tuberculosis in a Medium of Minced Chick Embryo in Tyrode's Solution, M. A. Soltys, J. Path. & Bact., July, 1942, 54: 375.*—(*H. J. H.*)

Urea and Tubercle Bacillus.—Urea has been shown to have a marked beneficial effect in the treatment of septic wounds. In Kirk's experiments it was shown that urea would kill bacteria in the presence of blood and other protein substances. It has also been shown that in a saturated urea solution no putrefaction ever takes place. In view of the preceding, the author decided to try the effect of urea on the tubercle bacillus. A pure culture of tubercle bacilli was suspended in sterile water to a dilution of about 5,000 million bacilli per cc. In each of four sterile test tubes was placed 1 cc. of this suspension, 1 cc. of urea of varying dilution being added. Two control test tubes were prepared using 1 cc. of the tubercle suspension and 1 cc. of sterile water. All six tubes were then transferred to the incubator at 37°C. and left for forty-eight hours. Each tube was then removed and 0.5 cc. of the contents placed on a "bottle" of Lõwenstein-Jensen medium and incubated. Approximately six weeks later the culture tubes were examined. The tubes representing urea in dilutions of half saturation and one-fourth saturation showed no growth. In an eighth and a sixteenth dilutions as well as the two controls growth was normal. The phenomenon is the same as that noticed by Wilson with coliform and other bacteria. Since urea in the pure state or in saturated solution is harmless to the tissues and since it not only kills tubercle bacilli in very large numbers but also destroys septic secretions and ordinary saprophytes as well as pathogens, it would appear very suitable as a dressing for tuberculous ulcers and even for small tuberculous empyemata.— *Urea and Its Effect on Tubercle Bacilli, S. L. Cummins, Brit. M. J., May 16, 1942, 1: 609.*—(*D. H. C.*)

Blood Sedimentation.—In reviewing the literature, it is claimed that the blood sedimentation rate has a definite value as a guide to the reaction of the patient to his disease, and, in brief, it is thought that a rising blood sedimentation rate denotes that the condition of a patient suffering from pulmonary tuberculosis is deteriorating, while a steadily falling or consistently normal result indicates that he is improving. After prolonged investigation the authors came to the conclusion that while the claims regarding the test were, broadly speaking, true, it was not of great value from the

point of view of the hospital or sanatorium physician, whose patients were under close observation, as the test did not give any information which could not be obtained from the usual routine methods and serial X-ray films—and that, therefore, it was of no value as a routine hospital procedure. They then set out to investigate the value of the test from the standpoint of the more remote, as opposed to the immediate, prognosis. For this purpose blood sedimentation rate estimations (expressed as mm. per hour) were done on admission and on discharge on all patients coming into the sanatorium during a period of nearly three years (1936–1939). The cases were then observed in the out-patient department. In all, 630 patients were thus studied with an average hospital stay of about one hundred forty-five days. The following results were noted in males. With the blood sedimentation rate under 10 on discharge no deaths at all had occurred in the 163 patients concerned; at 10–29 approximately 1 in 9 of the 85 patients had died; while at 30 or over, 16 of the 44 patients, or approximately 1 in 3, had died. In females the same trend was noted, except that 2 (1.5 per cent) of those having a rate under 10 at discharge had died. Furthermore it was found that all the 25 deaths of males occurred among the 116 patients with a blood sedimentation rate of 10 or over on admission and still retaining that level at discharge. There were no deaths among the 68 males who were admitted with a blood sedimentation rate of 10 or over which during treatment fell below that level, and none in the small group of 13 males whose admission rate was under 10 but at discharge had risen above 10. Of the 14 deaths of females, 12 occurred, similarly, among the 177 patients who had a blood sedimentation rate of 10 or over at admission and showed no fall below 10 during treatment. The remaining 2 occurred in the 46 patients who had a blood sedimentation rate of 10 or over at admission but had improved to 5–9 at discharge.—*Prognostic Value of the Blood Sedimentation Rate in Pulmonary Tuberculosis, E. Lewis-Fanning & M. Myers, Brit. M. J., August 1, 1942, 2: 125.—(D. H. C.)*

Weltmann Reaction in Filipino Children.—This report is based on a study of 260 children, 21 of whom had no active tuberculosis, who were admitted to the Ward Sto. Niño of the pediatric service of the San Juan de Dios Hospital of Manila, Philippines. A coagulation band of 8 was found to be normal for newborn children and one of $6\frac{1}{2}$ for children ranging from two weeks to ten years of age. These values conform with the standards given by American and European authors. The results obtained in various pathological conditions agree in general with values reported in the literature. A small group of selected cases was subjected to repeated examinations mainly for the purpose of correlating the coagulation band with the progress of the disease. All these cases showed on admission a marked shift to the left with a coagulation from 0 to 3. In cases progressing favorably the band shifted towards the right, and gave finally a normal reading at discharge. On the other hand, a patient who gave an extremely low reading on admission with a coagulation band of 0 died twenty-four hours later without showing any alteration in the reading of the band. The author feels that the use of the Weltmann reaction especially in connection with children's diseases is suitably adapted to the Philippine Islands. In any tropical country where tuberculosis is rampant the Weltmann reaction offers a valuable diagnostic aid and may foretell the possible outcome. The test is convenient and inexpensive and helps definitely in determining the onset, in forecasting the prognosis and finally in checking the effectiveness of the treatment.—*The Weltmann Serum Coagulation Reaction in Filipino Children, J. M. Palma, U.S.T.J. Med., May, 1941, 1: 293.—(F. G. K.)*

Tuberculosis of Endocardium.—Since v. Recklinghausen and Weigert described cases of endocardial tuberculosis and found that the right ventricular endocardium and the pulmonary conus were the site of predilection

only a few reports of this rare lesion have been published in the literature. Osler found 4 cases of endocardial tuberculosis among 275 autopsies and Norris 151 cases among 11,000 autopsies of tuberculous patients. In practically every case the presence of other bacteria rendered the absolute diagnosis difficult. The author has observed 4 cases of endocardial tuberculosis associated with generalized miliary tuberculosis among 16 cases of miliary tuberculosis, 15 of which were children and only one an adult. The range of age was from three to twenty-seven years. The left ventricular endocardium was selectively involved and showed microscopically foci of round cell infiltration. In no case was there evidence of previous damage to the heart. Although genuine endocardial tuberculosis is extremely rare, in one case the author felt justified to consider a primary tuberculous endocarditis. There are two recognized factors involved in the implantation of endocardial tubercles: either metastatic dissemination through the coronary vessels or vegetative implantation. The author feels that in regard to lack of previous damage to the heart which might have provided the soil or to lack of cardiac failure and hence of relative stagnation of the blood flow for the bacilli to establish a foot hold, the endocardial lesion probably represents the result of coronary dissemination.—*Tuberculosis of the Endocardium in Four Cases of Miliary Tuberculosis, H. H. Chu, Caduceus, August, 1941, 20: 171.*—(*F. G. K.*)

Tuberculous Pericarditis.—The insidious course of tuberculous pericarditis, the difficulties in diagnosis, the grave prognosis and the difficulties of treatment are illustrated in a detailed case report. This history demonstrates well the necessity of repeated search for tubercle bacilli over a prolonged period of time by cultural methods as well as by animal inoculation. The important clinical features of the disease are discussed and therapeutic measures are reviewed and evaluated.—*Tuberculous Pericarditis with Effusion, G. R. Burch & T. Winsor, Clinics, June, 1942, 1: 166.*—(*A. B. T.*)

Tuberculous Splenomegaly.—The occurrence of tuberculosis of the spleen in miliary or advanced tuberculosis of other organs is quite common. However, extensive active tuberculosis localized in the spleen is rare. Fewer than 100 cases of tuberculous splenomegaly have been reported. This case is that of a fifty year old Swiss who was admitted to the hospital because of enlargement of the abdomen, fever and loss of weight and strength. Upon examination the spleen was found to fill the entire left side of the abdomen. It was smooth except for a small nodule on its anterior surface. The abdominal veins were greatly dilated. The only other significant feature was a very marked leucopenia ranging from 950 to 1,500 white blood cells. At autopsy the abdomen was moderately distended and contained 2,000 cc. of turbid red fluid. The parietal peritoneum was smooth but the visceral peritoneum was covered by a thick fibrous exudate. The lungs showed passive congestion but no infiltrative lesions or scars. The spleen measured 29 x 18 x 9 cm. and weighed 2,700 g. A large firm white area 9 x 6 x 4 cm. was situated at the upper pole. On microscopical examination many areas of tuberculous necrosis with giant cell formation and containing acid-fast bacilli were seen. This patient's illness was characterized by a chronic infection with intermittent fever, the occurrence of petechiae, extreme splenomegaly, moderate enlargement of the liver and leucopenia. It is characteristic of tuberculosis of the spleen that abnormalities are discovered in the blood and blood forming organs. In this case the leucopenia was associated with a slight increase in neutrophilic cells in the blood and an increase in the immature myeloid elements in the bone marrow. These abnormalities in the hematopoietic tissues apparently resulted from extensive tuberculosis of the spleen.—*Tuberculous Splenomegaly: Study of a Case, J. W. Brown, J. L. Mason & S. P. Lucia, Ann. Int. Med., September, 1942, 17: 519.*—(*A. A. E.*)

Tuberculous Meningitis.—The bacteriological examination of 172 cerebrospinal fluids

examined at the Instituto Adolfo Lutz in Sao Paulo, Brazil, showed tubercle bacilli, in 102 of which by direct microscopical examination and in 70 by culture only. Thus the use of culture media was superior to direct examination as 40 per cent of the cases with positive results by culture failed to reveal bacilli on direct smear. Out of 124 specimens inoculated, 108 were obtained on rabbit blood agar, 93 on chocolate agar and 81 on Loewenstein's medium. The cultural findings with various media were as follows: blood agar 91.1 per cent, chocolate agar 85.3 per cent, Loewenstein's medium 65.3 per cent, Petragnani's medium 25.0 per cent. Loewenstein's medium without glycerol and malachite green gave better results (88.2 per cent) than with glycerol (65.3 per cent). Petragnani's medium with glycerol gave 25.0 per cent and without 63.3 per cent. Loewenstein's medium has proved suitable for the isolation of human strains of tubercle bacilli but entirely unsuitable for the bovine type as the latter failed to grow on it in primary cultures. Rabbit blood agar has given the best results for the isolation of both strains from the cerebrospinal fluid. Out of 124 cases from which tubercle bacilli were isolated sixteen strains were of the bovine type. For the differential diagnosis between eugonic and dysgonic strains cultures on Loewenstein's medium with glycol-potato gave the best results. Dysgonic atypical strains of human tubercle bacilli were inoculated into rabbits and only small lesions were found in lungs and liver. The percentage of the bovine type (13.2 per cent), of which 14.8 per cent were observed in children under ten years of age, obtained by the author in Sao Paulo is much lower than that found elsewhere. The observations furthermore establish a more frequent occurrence of tuberculous meningitis as diagnosed previously, particularly among children (58.4 per cent). The cause may be a bovine infection in view of the great prevalence of tuberculosis in cattle of which 40 per cent are affected according to veterinary estimation.—*De meningite tuberculosa, B. R. Pestana, Rev. Inst. Adolfo Lutz, July, 1941, 1: 40.*—(*F. G. K.*)

Paravertebral Abscess.—Six cases of paravertebral abscesses are described which ruptured into the pleura or the lung. Five were due to tuberculosis of the spine, one to actinomycosis. In analyzing the clinical course, the author directs attention to the frequency of prodromal symptoms manifesting themselves for considerable periods of time before the occurrence of the actual rupture. Frequent complaints were pleural pain, nonproductive cough, backache, fever and toxaemia. Such symptoms may exist for a sufficient length of time to permit surgical drainage of the abscess.—*Paravertebral Abscess with Rupture into the Pleura or Lung, W. D. W. Brooks, Brit. J. Tuberc., April, 1942, 36: 49.*—(*E. H. R.*)

Inoculation Tuberculosis.—External inoculation tuberculosis of the skin includes the primary cutaneous complex and lesions of the reinfection type, such as *tuberculosis verrucosa cutis*, anatomical tubercle, *tuberculosis cutis orificialis* and, probably in many instances, *lupus vulgaris*. The primary cutaneous complex represents the analogue of the Ghon tubercle in the lung. It has been estimated that in primary infection of all the organs only 0.14 per cent are cutaneous lesions. Primary infection constitutes only about from 0.5 to 2.0 per cent of cutaneous tuberculosis. The most authentic cases of the primary cutaneous complex are usually reported in children because of the relative ease with which previous tuberculosis can be excluded. Negative results of physical examination and negative reactions to the tuberculin test have more significance for the young child than for the adult person. In the latter, incontestable proof that the infection is primary is usually impossible to adduce. Of all the structures of the body the skin is perhaps the most resistant to tuberculosis. This probably accounts for the rarity of the disease under discussion. Some direct trauma, or disease injury, of the skin is necessary before inoculation can take place. The site of the majority of the lesions has been the face and the extremities, because these regions are more

readily traumatized than other parts of the body, and more likely to be contaminated by tubercle bacilli. There is nothing to indicate, however, that the skin of one part of the body is more resistant than that of another. The type of lesion produced by tuberculosis inoculation of the skin depends mainly on the influence of the immune-allergic state of the person at the time infection occurs allowing, of course, for other factors such as the natural resistance of the host and the type, number and virulence of the infecting organisms. Primary infection in man is similar in many respects to that which occurs in guinea pigs. Following inoculation there is a delayed response, or latent period, ranging from one to three weeks, during which the organisms, although multiplying, excite a tissue reaction which is nonspecific in type. It is probably during this period that lymphatic extension occurs, although enlargement of the lymph nodes is not evident clinically until three to six weeks after inoculation. A negative tuberculin skin reaction recorded during the first few days of infection proves the absence of sensitivity. After a period of six weeks, or a little longer, specific clinical and histological evidence of tuberculosis is usually present, and by this time a positive reaction to the tuberculin test indicates the presence of sensitivity. A verrucous reaction or lupus nodules may now be present at the cutaneous site. The appearance of a nonspecific reaction accompanied by a negative tuberculin test followed later by a specific histological reaction with a now positive tuberculin response make up the classic picture of a primary infection. In the reinfection type of cutaneous tuberculosis the infection occurs at a relatively immune and allergic site; the type of lesion varies greatly in clinical appearance and the condition varies in its course, depending on several factors, such as the degree of allergy and immunity present and the number and virulence of the infecting organisms. In general, however, inoculation in a previously infected person produces a specific reaction within a much shorter interval than that which occurs in a case of primary tuberculosis. Lymphatic metastasis seldom occurs in reinfection, although lymphadenitis has been observed in *lupus vulgaris tuberculosis cutis orificialis* and *tuberculosis verrucosa cutis*, possibly due to an unusually potent infecting dose. A decrease in the immune-allergic state known to occur in some adult persons following the healing of childhood primary complexes probably accounts for the cases of so-called pseudoprimary complex in which the clinical picture and the sequence of events may be identical in every respect to that of true primary infection. Although the organism that causes bovine tuberculosis has been isolated from the lesions of primary infection in man (farm workers and veterinarians), the human strain of tubercle bacilli is the predominant offender. There is no difference in the type of lesion produced by either of these strains. Tubercle bacilli are much easier to demonstrate in persons seen early in the course of the infection than late. After the development of the specific tissue reaction it may be impossible to demonstrate the organisms by any of the usual methods. During the early stages of the disease the histological picture of primary cutaneous tuberculosis is nonspecific in type. Ulceration, sometimes chancre-like, is usually present and the cutis is infiltrated with polymorphonuclear and lymphocytic leucocytes and a few plasma cells. In the early stages tubercle bacilli are numerous and are usually found in areas of caseation necrosis situated in the infiltrate. At about the time that lymphatic extension takes place epithelioid and giant cells appear in the cutis as well as in the regional lymph nodes. It is now often impossible to find tubercle bacilli. The histological picture of primary cutaneous tuberculosis is not typical, in contrast to the appearance of secondary types of this disease. Besides caseation necrosis is a feature of all types of inoculation tuberculosis of the skin, with the exception of *lupus vulgaris*. Clinically, the most typical picture of primary cutaneous tuberculosis is that seen after the involvement of the lymph nodes has occurred and before the altered

tissue response of reinfection tuberculosis has occurred. The lesion at the site of inoculation assumes the form of a small, indolent, crater-like ulcer with a rather dry crusted base and a raised, rolled and undermined border, the whole resting on an indurated base. The ulcer may strikingly simulate a syphilitic chancre, especially during the first few weeks of lymph node involvement. At times the primary lesion may be represented by a small erythematous nodule which never ulcerates, or the other extreme may be present, a large scrofulodermatous ulcer. Not uncommonly the lesion resembles an ordinary nonspecific pyogenic ulcer. Many patients are not seen until the primary lesion has healed. The resulting scar may be surrounded by lupus nodules, or, if the lesion has not completely healed, it may resemble *tuberculosis verrucosa cutis* or *lupus vulgaris*. The enlargement of the lymph nodes is usually what arouses suspicion of the tuberculous nature of the disease. The degree of lymph node involvement is all out of proportion to the degree of reaction in the primary lesion. Lymphangitis, with cord-like induration of the channels, may or may not be present. At first the nodes are discrete, but later they become matted together and, after a variable interval, liquefaction and rupture occur. It is usually not difficult to prove the tuberculous causation of the lesion by laboratory methods. But to prove that such an infection is primary is usually difficult. It is necessary to prove without reservation that there has been no previous tuberculous infection. This may be easy in children but it is difficult in adults. Even in children allergy varies and may entirely disappear under which condition infection may simulate a primary complex. The sequence of events, not only in the change from a nonallergic to an allergic reaction as shown by tuberculin tests, but also in the clinical and histological sequence, the delayed specific response at the site of inoculation and the appearance of lymphatic metastases not more than six weeks or two months after infection, aids in the diagnosis of primary disease. Some observers believe that when swelling of the lymph modes is delayed longer it probably means that a certain degree of resistance is present and is an indication of reinfection. In most cases the patient is seen only after the infection has been present for some time and, as the tuberculin reaction has usually by this time become positive, it is impossible to determine the patient's previous allergic state. However, in primary disease the characteristic secondary changes have occurred in the primary lesion, suggesting the diagnosis. In cases showing a small indolent and indurated ulcer syphilis must be excluded by microscopical dark-field examination, serological tests, etc. Inoculation tuberculosis must also be distinguished from ordinary pyogenic ulcer with bubo and from tularaemia. In rare instances it has been confused with epithelioma (with metastases to the regional lymph nodes) and with sporotrichosis. In treatment general supportive measures should be instituted. Absolute bed-rest is not required. Surgical excision of the primary lesion followed by adequate roentgen ray therapy to the adjacent nodes is advocated. In recent years roentgen therapy alone has been used with satisfactory results particularly for lesions on the face where good cosmetic results are desirable. Ultraviolet radiation has also been successfully employed. The nonspecific or tonic effect of the injection of neoarsphenamine is a valuable adjuvant in the therapeutic program. Inoculation tuberculosis of the skin, regardless of whether the infection is the primary or reinfection type, is usually benign so far as dissemination to other parts of the body is concerned. Aside from circumcisional tuberculosis, which is now rare, the disease is nearly always confined to the site of the primary lesion and the regional lymph nodes. Local lesions often heal spontaneously. The greater reaction is present in the regional lymph nodes and healing is seldom complete at these sites without treatment. Investigators are not agreed whether the primary complex may not be the starting point for *lupus vulgaris*. Reports of cases and illustrations accompany the article.—*Inoculation*

Tuberculosis, P. A. O'Leary & M. W. Harrison, Arch. Dermat. & Syph., September, 1941, 44: 371.—(J. S. W.)

Chronic Haematogenous Tuberculosis.—A young woman was observed over a five-year period for persistent low grade fever. There was a family history of tuberculosis and chest X-ray films of the patient showed a fibrocalcific lesion of the left apex and calcified nodes in the left hilum. This lesion was stationary throughout the period of observation. The patient had nervousness, asthenia, anaemia and diffuse abdominal pains. She developed bilateral suppurative otitis media and a tuberculous skin lesion. Although bacteriological or pathological proof is lacking, this case is regarded as an example of a chronic bacillary state of tuberculosis. This is a latent, but not inactive, state caused by the action of tubercle bacilli of low virulence. The result is a chronic toxaemia which is not influenced by any kind of therapy.—*Considérations sur un cas d'état bacillaire chronique. Quelle est la place de cette maladie dans la nosologie tuberculeuse?, R. Burnand, Schweiz. med. Wchnschr., August 1, 1942, 72: 838.—(H. M.)*

Sarcoidosis.—Three cases of Boeck's sarcoidosis are presented, in none of whom at any time did skin manifestations appear. In 2 of the cases lymph nodes in localized regions only were clinically affected, while in the third case there was wide-spread involvement of the lymph nodes and in addition lesions of the liver and lungs. In the light of present knowledge it is difficult to accept the first 2 cases as instances of isolated glandular involvement. With the limited clinical means of exploring the body, obscure involvement of other lymphatic structures might well have been present. Although a thorough clinical examination of the peripheral nodes and radiographic studies of the chest revealed no evidence of adenopathy, it has been pointed out that histological examination of the clinically normal appearing lymphatic structures will often reveal sarcoidosis. Thus in case 1, only after reëxamination of a series of sections of tonsils removed five years previously was a single miliary sarcoid lesion demonstrated. Unfortunately, since no further studies were permitted, the histology of nonpalpable nodes or tonsils of case 2 was not observed. The third case presented many signs and symptoms of a disseminated tuberculous process. There was slight fever with cough, weight loss, enlargement of the cervical, axillary, inguinal, mediastinal and mesenteric lymph nodes, as well as pulmonary parenchymal infiltration of a caseous-pneumonic type and marked enlargement of hilar shadows. Lesions in the liver and perigastric lymph nodes were found which resembled tubercles of the "hard" variety. Skin manifestations were absent, the tuberculin reactions were not significant and tubercle bacilli could not be found in the sputum or excised tissues. The subsequent clinical course proved the diagnosis of miliary tuberculosis to be incorrect, and reëxamination of the extirpated nodes established the true diagnosis. Since generalized Boeck's sarcoidosis is usually a benign, nonfatal disease, there is no doubt that many reported cures of miliary tuberculosis are in fact instances of recovered sarcoidosis.—*Sarcoidosis. A Consideration of the Clinical and Histological Criteria Differentiating Sarcoidosis from Tuberculosis, H. L. Rakov & J. S. Taylor, J. Lab. & Clin. Med., July, 1942, 27: 1284.—(F. G. P.)*

Uveoparotitis.—Approximately 100 cases of uveoparotitis have been reported. The essential features of this disease are bilateral inflammatory lesions of the uveal tract and bilateral parotitis often associated with paralysis of some cranial nerves, usually the peripheral portion of the seventh. The parotitis is chronic and almost painless and tends to resolve without suppuration. Low-grade fever is usually present. The ocular manifestations usually precede the glandular involvement. The aetiology of uveoparotitis has been much discussed. Pinner believes that it is a form of noncaseating tuberculosis similar to Boeck's sarcoid. Pinner bases this

belief on the histological character of the lesions, the demonstration of anticutins and therefore positive tuberculin anergy, and the fact that practically all patients who expired died of frank tuberculosis. The patient observed in this instance was a thirty-six year old white woman who had been entirely well until three months before admission. At that time she developed moderately painful swelling of the parotid glands, paralysis of the muscles of the left side of the face and subsequently sore eyes. Upon examination both parotid glands were found to be enlarged, the left more so than the right. The glands were firm and not tender. The submaxillary glands were moderately enlarged. There was slight oedema of the upper eye lids and circumcorneal injection of each eye ball. The irises lacked their normal clearness. Biopsy of the left parotid gland showed epithelioid hyperplasia and tubercle formation. The Mantoux test was negative with 0.01 mg. of Old Tuberculin but positive with 1.0 mg. Roentgen therapy of the left parotid gland was carried out and the uveitis was treated with 1 per cent atropine and dionin. Upon examination several months later all the previously described signs and symptoms had disappeared. The prognosis in this disease is considered to be good.—*Uveoparotitis: Case Report, M. L. Carns, Ann. Int. Med., June, 1942, 16: 1239.*—(*A. A. E.*)

Sulfa-Therapy of Tuberculosis.—Sulfapyridine and sulfathiazol have a bacteriostatic effect on tubercle bacilli *in vitro*. Twenty guinea pigs were inoculated subcutaneously with 1.5 mg. BCG each. After one month all of them reacted to an intracutaneous tuberculin injection. One month and a half later each was given 0.2 mg. of human tubercle bacilli into the trachea. Chemotherapy was started two weeks after that. Two guinea pigs died before the onset of treatment. Six animals were treated with sulfapyridine, the dosage being 0.4 g. per kg. Six animals received sulfathiazol, 0.2 g. per kg. Six animals remained without therapy. Under sulfapyridine treatment the extrapulmonary dissemination of the tubercle bacilli was retarded, the pulmonary lesions were not affected. Sulfathiazol had no effect at all; it is believed that the dosage may have been too small.—*Traitement de la tuberculose de réinfection du cobaye par la sulfapyridine et le sulfathiazole, M. Giroux, Laval. méd., November, 1942, 7: 473.*—(*G. C. L.*)

Diluent for Old Tuberculin.—This study represents a reinvestigation of a tuberculin diluent consisting of borax-boric acid buffer, gum acacia and phenol. Skin sensitivity to the various components of this diluent was tested in guinea pigs, rabbits and humans. Sensitivity to gum acacia could not be demonstrated by the methods employed. Oedematous reactions in the guinea pig after injection of the diluent were found to be due to the phenol. In rabbits no similar reactions were observed, indicating that the rabbit is not as sensitive as the guinea pig to injection of phenol. Of 1,624 human subjects tested with the diluent none showed reactions that did not disappear within seventy-two hours. The reactions that were elicited could not be interpreted as positive tuberculin reactions. No appreciable difference between kind or number of positive reactions was found when Old Tuberculin diluted in the stabilizing diluent was compared with tuberculin diluted in phenolized saline.—*Studies on the Stabilizing Diluent for Old Tuberculin, R. Y. Gottschall & T. M. Koppa, J. Immunol., April, 1942, 43: 349.*—(*A. B. T.*)

Tuberculosis in Platyfish.—A naturally occurring outbreak of tuberculosis in the small tropical platyfish (*Platypoecilus maculatus*) was studied. The disease is caused by a specific acid-fast organism, which required about three weeks incubation at 25°C. before growth could be detected on the glycerol-egg medium. No growth occurred at 37°C. on any media. It is probable that the optimum temperature for this organism is about 30°C. Morphologically the organism appears as a straight rod about the size of the human tubercle bacillus but exhibiting little of the

pleomorphism seen in mammalian tubercle bacilli. It is strongly resistant to decolorization by 3 per cent hydrochloric acid in 95 per cent alcohol. This species differs from all others from cold blooded animals and it is proposed that this organism be known hereafter as *Mycobacterium platypoecilus*. In connection with these studies, another acid-fast organism was repeatedly isolated from the water of the aquariums. This organism apparently is harmless to fish ordinarily but proved pathogenic when injected. This strain grew quite rapidly on all ordinary laboratory media, although glycerol-phosphate agar seemed most favorable. Growth at room temperature was almost as rapid as at 37°C. It was not as strongly acid-fast as tubercle bacilli and as the organism previously described, since complete destaining could be accomplished in five minutes with acidulated alcohol. Thirty-nine strains of this organism were studied by Gordon and Hagan who found them to be identical with each other but different from all but one other strain of their extensive collection of acid-fast bacteria. The lone strain of the collection which resembled the aquarium organism was one which had been isolated from soil and which was regarded as a saprophyte. Attempts to infect platyfish and goldfish with this organism failed when large amounts of culture were fed; however, when parenterally inoculated, the culture killed goldfish. Since several acid-fast organisms isolated from soil, and which are regarded as purely saprophytic, did the same thing, it is concluded that inoculation into the tissues is not a good way to determine pathogenicity of such cultures.—*Tuberculosis of the Mexican Platyfish (Platypoecilus Maculatus), J. A. Baker & W. A. Hagan, J. Infect. Dis., May–June, 1942, 70: 248.*—(*F. G. P.*)

Diagnosis in Pulmonary Diseases.—The importance of an early diagnosis of respiratory conditions is emphasized and illustrated by 4 case reports. The thoroughness of the diagnostic study will determine frequently whether the right answer is found in time to help the patient. The aetiology and clinical aspect of unresolved pneumonias, chronic pneumonitides and bronchopulmonary suppuration are discussed and various methods of study in each of these conditions are pointed out.—*The Necessity of a Complete Diagnostic Study in Certain Types of Pulmonary Disease, W. H. Gillentine, Clinics, June, 1942, 1: 178.*—(*A. B. T.*)

Droplet Infection and Sneezing.—Previous experiments, using the photographic technique, have shown that many thousands of droplets are emitted during a vigorous sneeze. The authors describe a quantitative study of the number of bacteria-carrying particles given out during sneezing, of their rate of disappearance from the air in a closed room, and of the rate at which they are killed by a hand spray, using a 1 per cent sodium hypochlorite solution. For the purposes of the experiment a small, well-closed room was used. Constant circulation of air of an average temperature and humidity was maintained by means of a well placed electric fan. Samples of air were withdrawn by suction via glass tubes leading from points in the room through one of the walls to a corridor. Open Petri dishes placed five feet from the sneezer were also used. The subject sneezed four times in succession—snuff or a bromine compound was used to stimulate the sneezing. Control samples were taken for five minutes before the sneezing and samples were also taken after spraying the room with the sodium hypochlorite solution. Colony counts were then made and the results analyzed. The peak is reached one minute after the sneezing at which time 492 colonies per cubic foot were counted. The count gradually falls so that at five minutes after sneezing it is 342; ten minutes, 288; fifteen minutes, 157; twenty minutes, 89; and after forty-five minutes still four times the control count are present. After using the spray the counts rapidly decreased and within ten minutes reached the control count. Thus it is concluded that droplet infection is of great importance since 20 per cent of the particles remain suspended for fifteen minutes and 4 per cent for thirty minutes. It thus

seems probable that the danger of infection from a sneeze may last at least half an hour in a closed room. The authors finally emphasize the large numbers of infective particles which are emitted in sneezing, and the surprisingly long time before the number suspended becomes negligible.—*Sneezing and Disinfection by Hypochlorites, R. B. Bourdillon, O. M. Lidwell & J. E. Lovelock, Brit. M. J., January 10, 1942, 1: 42.*—(*D. H. C.*)

Acute Respiratory Infection of Unusual Type.—More than 200 cases of an acute febrile respiratory illness occurred during April and May in a Coast Guard training station at Manhattan Beach, Long Island, New York. About 170 of these patients were hospitalized. The disease was characterized by fever of about seven days' duration with chill in many cases, pharyngitis, laryngitis, tracheitis, malaise and aching of the body and extremities. Conjunctivitis and hoarseness were frequently found. Bloody sputum was present in quite a considerable number of cases. There was often a history of a "cold" for one week or longer before the onset. X-rays of the lungs were almost uniformly negative. The total white blood cell counts were either normal or moderately elevated. Bacterial cultures of the sputum revealed no constantly occurring organism. No relation to known types of influenza virus could be established. With exception of 2 patients who had small questionable areas of bronchopneumonia, there were no complications. No deaths occurred. —*An Epidemic of Acute Respiratory Infection of Unusual Type, I. W. Oliphant, Pub. Health Rep., July 3, 1942, 57: 993.*—(*A. B. T.*)

Psittacosis.—Psittacosis continues to exist in this country despite methods of control over the importation of parrots and similar birds. Patient was a forty-four year old woman who became ill three days after the removal of a fistula of the anus. At that time her temperature rose to 102°F. and continued to rise each subsequent day. It was later discovered that eight days prior to the onset of the illness the patient had been bitten on her right index finger by an African love-bird which had died two days later. Fifteen days after onset bilateral pneumonic infiltration was demonstrable on roentgenological examination and this rapidly progressed. The patient died eleven days after the onset of the acute illness. In a specimen of the patient's blood the serum was found to have a strong complement fixation reaction with psittacosis antigen in a dilution of 1 to 128. At autopsy, bilateral confluent lobular pneumonia, inflammatory hyperplasia of the lymph nodes and fatty degeneration of the liver were found. Except for the pulmonary involvement the clinical course was much like that of typhoid fever. The pulse was slow in relation to the temperature. Rose spots occasionally occurred and the patient had headache, disorientation and drowsiness which progressed to stupor. The characteristic pneumonia is accompanied by cough with little or no sputum. The diagnosis of psittacosis depends upon the possibility of infection by exposure to parrots or love-birds, the positive complement fixation of the blood serum and a characteristic clinical course.—*Psittacosis: Report of a Fatal Case Treated with Sodium Sulfapyridine, E. Applebaum & W. Ackermann, Ann. Int. Med., September, 1942, 17: 528.*—(*A. A. E.*)

Fleeting Pulmonary Infiltrations.—Five patients have been studied whose chest roentgenograms showed densities simulating tuberculosis which, however, proved to be nontuberculous. In each of these 5 cases pulmonary tuberculosis was originally diagnosed by one or more roentgenologists or phthisiologists. Doubt was cast upon the original diagnosis when examination of the sputum and gastric contents failed to disclose tubercle bacilli. Subsequent serial roentgenograms confirmed the nontuberculous aetiology of the pulmonary infiltrations. The demonstration of tubercle bacilli in the sputum should be the criterion of the final diagnosis of pulmonary tuberculosis. The first of these patients had pulmonary changes subsequent

to left heart failure. In the second patient the apparent tuberculous changes in the right lung and subsequent spread to the left lung were caused by virus pneumonia. The same was true in another patient. In a fourth patient a nontuberculous pulmonary abscess was mistakenly diagnosed as pulmonary tuberculosis. The fifth patient had transitory pulmonary infiltrations, associated with eosinophilia, a syndrome described by Löffler and probably caused by an allergy. Reliance on a single chest roentgenogram for diagnosis frequently leads to error. When tubercle bacilli cannot be found in the sputum or gastric contents by all methods of examination, it is extremely unlikely that pulmonary tuberculosis is a cause of the infiltrations seen on the roentgenograms.—*Transitory Pulmonary Infiltrations Mistaken for Tuberculosis, With a Report of Five Cases, A. A. Karan & E. Singer, Ann. Int. Med., July, 1942, 17: 106.*—(*A. A. E.*)

Pulmonary Tularaemia.—The first clinical description of tularaemia was made by R. A. Pearce in 1910. Since that time numerous observations on this disease have been made. In Utah in 1938, there were 73 cases reported with only one death and pneumonia had not hitherto been recognized as a complication. Of 12 cases studied at the Latter Day Saints Hospital, 5 have had pulmonary complications. The diagnosis of tularaemia was made from a history of possible exposure and a positive agglutination test. Four cases of pulmonary complications have been treated with sulfanilamide and all have recovered. None of these patients had bronchitis. Three had pleurisy with effusion, one had a pulmonary abscess with a bronchopleural fistula and a spontaneous pneumothorax and one had unilateral pulmonary consolidation followed by a pleural effusion. Although the mortality rate in tularaemia is low, at least half the cases that die have pulmonary complications. Therefore it is believed that, since these 4 patients responded so favorably to sulfanilamide, the drug has a therapeutic value in this disease.—*Tularemia with Pulmonary Complications, G. G. Richards, Ann. Int. Med., July, 1942, 17: 78.*—(*A. A. E.*)

Eosinophilic Infiltrations.—Because of the fleeting and benign character of Loeffler's eosinophilic infiltrations no autopsy reports have been published. Four postmortem records from the Swiss army are reported. Three patients died in accidents and the fourth died of traumatic tetanus three days after the injury. All men were reported to have been in good health and able to perform active duty until the time they died. The pulmonary findings were entirely unsuspected. Macroscopically the findings were not characteristic. They appeared like ordinary bronchopneumonic foci, and in two instances there was accompanying bronchitis and bronchiolitis. On microscopical examination, the alveoli contained a true inflammatory exudate in which eosinophiles predominated. There were also some giant cells, but not of the Langhans type. In one case Charcot Leyden crystals were found both in the lung and in eosinophilic deposits in the portal spaces of the liver. All cases showed striking eosinophilia of the blood and bone marrow. It is believed that the pathological findings are the true lesions of Loeffler's eosinophilic infiltrations. Various theories for the pathogenesis are advanced. Theoretically, ascaris could well be the causative organism, because the parasitic larvae are frequently found in the lung. Two of the reported cases showed a few ascaris in the intestinal tract, but careful sectioning of the pulmonary lesions failed to reveal any larvae in this location. It has been stated that plant allergens, notably pollens, are capable of producing such infiltrations. This study does not afford proof for either hypothesis, but it is believed that a variety of factors can cause eosinophilic infiltrations in an organism capable of reacting to various stimuli with eosinophilia.—*Das eosinophile Lungeninfiltrat, H. Meyenburg, Schweiz. med. Wchnschr., July 25, 1942, 72: 809.*—(*H. M.*)

Fleeting Pulmonary Infiltrations.—The important differential diagnosis of transient pul-

monary infiltrations includes eosinophilic infiltrates of Löffler, early tuberculous infiltrates and atypical pneumonias. The eosinophilic infiltrations are characterized by paucity of symptoms and signs, a mild course and marked eosinophilia. They are usually accidental discoveries, but more severe forms are occasionally seen. Early tuberculous infiltrates, and some forms of childhood tuberculosis, such as perifocal reactions, epituberculosis, and hilar lymph node tuberculosis, do not show eosinophilia. It has been amply proved that early tuberculous infiltrates may disappear quickly and spontaneously, and their nature can only be proved by the later occurrence of tuberculous foci in the same location. Atypical pneumonias are now more frequent than they used to be. In these cases there is no eosinophilia, and in one group the Wassermann reaction may become positive during the course of the disease. Serial X-ray films will exclude atelectasis, tumors, early abscess and other conditions which may present problems if only one film is seen.—*Die flüchtigen Lungeninfiltrate, R. Staehelin, Schweiz. med. Wchnschr., July 18, 1942, 72: 785.*—(*H. M.*)

Chronic Pulmonary Infiltrations with Eosinophilia.—Since Löffler first described pulmonary infiltrations with blood eosinophilia in 1931 many cases have been reported. So far, all have described a syndrome consisting of minimal symptoms, blood eosinophilia and fleeting pulmonary infiltrations. Two different observers have since reported cases in which the symptomatology was severe, the course protracted to many months and the only common link was a persistent, though variable, eosinophilia throughout the disease. A different form of pulmonary infiltration accompanied by eosinophilia is presented in this paper. The patient complained of backache, headache and nightsweats. The X-ray film showed patchy consolidation of the right upper lobe. The sputum frequently contained eosinophiles, but no pathogenic organisms. During the course of observation eosinophilia ranged from 10 to 34 per cent. Over a fifteen months' period of observation the clinical and laboratory and the X-ray findings showed no change. The patient remained in good general health. It is impossible to state at this time whether the three different pictures are manifestations of the same disease, especially since the aetiology is not known. The possibility of an underlying allergic factor is discussed.—*Das chronische Lungeninfiltrat mit Bluteosinophilie, M. Kartagener, Schweiz. med. Wchnschr., August 8, 1942, 72: 862.*—(*H. M.*)

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